

Tokelau on Naboo

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Tinea imbricata, a superficial fungal infection of man, has an ornate appearance composed of concentric circles and polycyclic or serpiginous scaly plaques (fig 1). The condition is common in several humid tropical regions, especially in parts of Polynesia and Melanesia. It is also reported occasionally in the Amazon basin and other tropical areas in both hemispheres.^{1 2} The precise distribution of *tinea imbricata*, however, has been poorly defined ever since the disease was named by Sir Patrick Manson, the father of tropical medicine.^{3 4}

I report the possible presence of *tinea imbricata* outside its previously known geographic and taxonomic distribution. Several Gungan inhabitants of Naboo, a planet of the Galactic Republic depicted in *Star Wars Episode 1: The Phantom Menace*, have skin with the distinctive annular and polycyclic pattern of *tinea imbricata*. Jar Jar Binks, a Gungan who figures prominently in this movie, shows this eruption in figure 2. Manson wrote of the infection, "Again, *tinea imbricata*, if it has been in existence any length of time, involves a very large surface, as an entire limb, or side of the trunk, or oftener still, if not checked, nearly the whole surface of the body ... As advancing rings spread, their regularity is modified by the shape of the parts, the nature of the skin they travel over, and by encountering other systems of rings."⁵



Fig 1 "We discover a pattern ... as if the disease had advanced in parallel and concentric lines from a great many different centres"—Patrick Manson⁴

Summary points

Tinea imbricata has an ornate appearance, but its precise distribution has been poorly defined

Clinical diagnosis based on appearance of their diseased skin is that Gungan inhabitants of the planet Naboo are infected with *tinea imbricata*

Indirect evidence suggests that Gungans have had contact with human populations who have this fungal infection

The occurrence of *tinea imbricata* in Gungans may help answer questions about extraterrestrial interventions in human affairs

Gungans are bilaterally symmetrical featherless amphibious creatures. They have an internal skeleton, teeth, eyelids, and a tongue. Their four limbs are configured in a mammalian design and have four fingers and three toes. The only earthly creatures with these digital characteristics are the paca (*Agouti paca*) and the tapir (*Tapirus* spp), which are also semiaquatic creatures of tropical forests.

Tinea imbricata in Gungans

My diagnosis of *tinea imbricata* is clinical, based on the appearance of the Gungans' diseased skin. Without scrapings, I was unable to confirm the diagnosis by culture or microscopy. Although we know little about diseases of extraterrestrial creatures (ETs), indirect evidence suggests that Gungan skin is composed of keratin, that they are susceptible to human diseases, and that they have had contact with human populations who have *tinea imbricata*.

Tinea imbricata is caused by a dermatophyte, *Trichophyton concentricum*, which subsists on a protein, keratin, found in the skin of all vertebrates. Gungans have an internal cartilaginous skeleton⁵ and an upright striding bipedal gait, a morphological plan found only in vertebrates.⁶ The logical extension is that Gungans are vertebrates and therefore have keratinised skin.

There is scant information on the transmission of human diseases to ETs. A Medline search for extraterrestrial dermatophytoses (search criteria [exobiology or extraterrestrial environments] and [skin diseases or mycoses]) retrieved no citations. Elsewhere the science literature describes ETs who are susceptible to diseases caused by earthly pathogens. Martians, for example, suffered fatal infections from mundane microbes both on Earth and on Mars. A century ago, a Martian invasion force was brought to a standstill in London, not because of a strike of transportation workers, but because the Martians were "slain by the

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Fig 2 *Tinea imbricata*, as seen in Gungans. If the infection has been in existence any length of time, involves a very large surface

putrefactive and disease bacteria against which their systems were unprepared.”⁷ Later much of Mars’s population was decimated by the varicella zoster virus, which caused “chicken pox, a child’s disease, a disease that doesn’t even kill children on earth.”⁸ If earthly bacteria and viruses can infect ETs, then perhaps so can fungi.

Evidence of extraterrestrial visitations

The occurrence of *tinea imbricata* in Gungans may help answer questions about extraterrestrial interventions in human affairs. *Tinea imbricata* already has a curious, although obscure, place in tracing human migrations. The disjunct distribution of the infection in Pacific islands and the Amazon basin has been used as medical evidence of pre-Columbian contact between Polynesians and South Americans.² Other clues—botanical, cultural, genetic, and linguistic—also attest to exchange between the two populations. Thor Heyerdahl proposed that South Americans sailed west into Polynesia where, among other things, they helped erect moai, the giant stone heads of Easter Island.⁹ In opposition to Heyerdahl’s Kon Tiki hypothesis, von Daniken postulated that exchanges between the two regions were mediated by “unknown space travelers who visited our planet many thousands of years ago.”¹⁰ These ETs, von Daniken claims, helped construct the stone heads of both Polynesia and Mesoamerica, accounting for their similarities.

Von Daniken does not identify which ETs visited Earth, but linguistic evidence links Gungans and *tinea imbricata*. Like morbus gallicus, *tinea imbricata* is a disease whose vernacular name often impugns foreigners as the source of the infection. On several Pacific archipelagoes *tinea imbricata* carries the name of a neighbouring group of islands. For example, on

Samoa it is called lafa tokelau, the Tokelau disease.¹¹ On Tokelau it is blamed on an infected Gilbertese.¹² And on the Gilberts, it is called gune, the Gungan disease.

Early descriptions

The first description of *tinea imbricata* from the Gilberts was prepared by Charles Wilkes, commander of the United States Exploring Expedition (1838-42) sponsored by the Smithsonian Institution. Note how perfectly this passage describes Gungan skin as well as *tinea imbricata*: “The kind of cutaneous disorder called by the natives *gune* prevails extensively ... Several circles often form on the body within a short distance of each other, the rings meet and become confluent, producing a variety of curved lines, and concentric circles. The whole body becomes at length covered.”¹³ The Gilbertese name for the infection, gune, and the term Gungan are probably derived from the same root word in a reduplication of syllables, so common among Remote Oceanic languages (for example, as seen in kava and kavakava).

Two other conditions that might explain the patterns on Gungan skin are erythema gyratum repens and cryptic coloration. Erythema gyratum repens, typically a paraneoplastic syndrome, is a dermatosis described as having a woodgrain appearance. Cryptic coloration is a type of camouflage that, in this case, would allow Gungan skin to match the leafy background of Naboo’s forests. I sent a letter to George Lucas, creator of the *Star Wars* films, asking about Gungan skin. His secretary replied, “With regard to Jar Jar Binks’ skin, obviously, he is an alien, and his skin is a natural coloration, not a rash or camouflage coloration.”

In conclusion, I believe that the distinctive pattern on Jar Jar’s skin is due to *tinea imbricata*, thereby extending the known geographical and taxonomic range of this dermatophyte infection. I propose the term xenanthroponosis for an infection of an ET that was acquired from humans.

Contributors: SAN paid real money to see *Star Wars Episode 1: The Phantom Menace* and to rent it on video, and is guarantor for the paper. Daniel Norton pointed out that Jar Jar’s skin looked like one of the diseases that Dad likes. Benjamin Norton explained to Dad what Gungans were. Dr Leena Mammen provided figure 1. Lucasfilm Ltd provided figure 2. Members of the Science Fiction Research Association (www.sfra.org) discussion list suggested the name xenanthroponosis.

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